Section: Miscellaneous

Original Research Article

PREVALENCE OF VARICOSE VEINS AND ITS RISK FACTORS AMONG STAFF NURSES OF AGE GROUP 30-65 YEARS IN A TERTIARY CARE HOSPITAL, KAKINADA

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ABSTRACT

Background: Varicose veins are a common venous disorder, particularly affecting individuals with occupations that require prolonged standing, such as nursing. Global prevalence ranges between 10–30%, but Indian studies report significantly higher rates among female nurses. This study was conducted to assess the prevalence and associated risk factors of varicose veins among female staff nurses in a tertiary care hospital in Kakinada, Andhra Pradesh.

Materials and Methods: A cross-sectional study was conducted from October to November 2022 among 100 female staff nurses aged 30–65 years working at Government General Hospital, Kakinada. Participants had a minimum of six months of service and provided informed consent. Data were collected through a structured interviewer-administered questionnaire capturing sociodemographic data, occupational risk factors, and clinical symptoms, followed by physical examination. Ethical clearance was obtained. Data analysis was performed using Epi Info 7 and SPSS version 28, with results expressed as percentages and frequencies.

Results: The prevalence of varicose veins was 65%. The most commonly reported symptoms included leg aching and heaviness (78%), tortuous dilated subcutaneous veins (66%), and skin pigmentation changes (65%). Relief with leg elevation was noted in 67% of cases. The most significant occupational risk factor was prolonged standing (96%), followed by obesity (41%), family history (11%), chronic constipation (7%), pregnancy (6%), and tumor history (3–7%).

Conclusion: A high prevalence of varicose veins was observed among staff nurses, with prolonged standing being the most significant risk factor. These findings highlight the need for preventive workplace interventions and awareness programs to reduce the burden of varicose veins among healthcare workers.

Keywords: Varicose veins, Staff nurses, Prevalence, Risk factors, Prolonged standing.

INTRODUCTION

Varicose veins are a common venous disorder frequently seen in professions that involve prolonged standing, such as nursing. Globally, the prevalence ranges between 10–30%, with higher rates reported in industrialized nations. In India, a 2022 study reported a 67% prevalence among female nurses, significantly higher than the 9% observed in their male counterparts. The current study, conducted among staff nurses aged 30–65 years at a tertiary care hospital in Kakinada, found a prevalence of 65%. Varicose veins are characterized by dilated, tortuous

veins, usually in the lower limbs, resulting from incompetent venous valves, weakened vessel walls, and increased intravenous pressure. Common symptoms include leg aching, heaviness, swelling, itching, and pigmentation changes, with complications such as ulceration, superficial thrombophlebitis, eczema, and lipodermatosclerosis in advanced stages. Risk factors identified were prolonged standing (especially more than 5–6 hours daily), obesity, pregnancy, chronic constipation, tumors, family history, and aging. Conservative management includes leg elevation, compression therapy, weight loss, and lifestyle modification, while interventional options include sclerotherapy, laser ablation, and surgery. Despite the high occupational risk, few studies have addressed varicose veins among frontline healthcare workers. This study aimed to estimate the prevalence and evaluate associated risk factors of varicose veins in staff nurses to inform preventive strategies.

MATERIALS AND METHODS

The study was conducted at Government General Hospital (GGH), Kakinada, Andhra Pradesh. A cross-sectional study design was employed, and a convenient sample of 100 staff nurses who had been working for more than six months at the hospital was selected based on inclusion criteria. The study was carried out between October and November 2022, encompassing pilot testing, data collection, analysis, and report preparation. The sample size was determined using a single proportion formula with a 95% confidence level and 5% precision, incorporating prevalence estimates from previous studies. As the source population was fewer than 6000, finite population correction was applied. All eligible staff nurses from various departments were included consecutively. Inclusion criteria were nurses aged 30–65 years who were willing to provide informed consent, while those with less than six months of service or absent during data collection were excluded. Ethical approval was obtained from the Institutional Ethics Committee, along with permission from the Principal of Rangaraya Medical College and the Superintendent of GGH, Kakinada.

Statistical Analysis

Data was collected through a pilot-tested, semi-structured, interviewer-administered questionnaire, covering sociodemographic details, occupational risks, symptoms, and clinical signs. Physical examinations were performed to assess varicose vein-related manifestations. Data was analyzed using Epi Info 7 and SPSS version 28.

RESULTS

A total of 100 female staff nurses aged between 30 to 65 years participated in the study. The majority of participants (49%) belonged to the 30–40 years age group, followed by 36% in the 40–50 years group, and 15% in the 50–65 years group. The highest prevalence of varicose veins was observed among those aged 40–50 years (Table 1). Regarding family structure, the vast majority (95%) lived in nuclear families, while only 5% belonged to extended families. In terms of religion, 70% of participants were Hindu, 28% were Christian, and 2% were Muslim.

Table 1: Age Distribution, Family Structure, and Religion of Study Participants (N = 100)

Variable	Category	Frequency (%)
Age Group	30–40 years	49 (49%)
	40–50 years	36 (36%)
	50–65 years	15 (15%)
Family Structure	Nuclear	95 (95%)
	Extended	5 (5%)
Religion	Hindu	70 (70%)
	Christian	28 (28%)
	Muslim	2 (2%)

Clinical Presentation of Varicose Veins

Among the 65 participants diagnosed with varicose veins, the most commonly reported symptom was aching and heaviness of the legs (78%). This was followed by the presence of tortuous dilated subcutaneous veins (66%) and pigmentation changes (65%). Pain relief upon elevation of the affected leg was reported by 67% of the participants. Less frequent symptoms included itching and ankle swelling (8%), corona phlebectasia around the ankle (8%), pigmentation around the ankle (11%), and pitting edema (1%–8%). No cases reported bleeding from swelling.

Table 2: Presenting Signs and Symptoms of Varicose Veins Among Affected Participants (n = 65)

Symptom	Frequency (%)
Heaviness and aching of legs	51 (78%)
Tortuous dilated subcutaneous veins	43 (66%)
Pigmentation of skin	42 (65%)
Pain relieved on leg elevation	44 (67%)
Pigmentation around the ankle	7 (11%)
Corona phlebectasia around the ankle	5 (8%)
Itching and ankle swelling	5 (8%)

Pitting edema	1 (1%)
Discharge of blood from swelling	0 (0%)

Prevalence and Associated Risk Factors

The overall prevalence of varicose veins among the study population was 65%. Prolonged standing was the most prevalent occupational risk factor, reported by 96% of participants, and was significantly associated with the condition. Obesity was present in 41% of participants and also observed among those with varicose veins. Additional risk factors included a familial history of varicose veins (11%), chronic constipation (7%), pregnancy (6%), and a history of tumors (noted as 7% in raw data, 3% in discussion).

Table 3: Prevalence of Risk Factors Among Participants with Varicose Veins (n = 65)

Risk Factor	Frequency (%)
Prolonged standing	62 (96%)
Obesity	27 (41%)
Familial history of varicose veins	7 (11%)
Chronic constipation	5 (7%)
Pregnancy	4 (6%)
History of tumors	5 (7%)

DISCUSSION

The present study revealed a significantly high prevalence of lower limb varicose veins (VV) among staff nurses in a tertiary care hospital in Kakinada, with 65% of participants exhibiting symptoms. This figure is notably higher than the prevalence rates reported in many other national and international studies. For instance, Mishra et al,[1] identified a prevalence of 24.17% among Indian nurses, while AlBader et al,[2] and Yun et al,[3] reported 11% and 16.2%, respectively, in Saudi Arabia and South Korea. However, the findings of the present study are comparable to some Iranian studies, such as Sharif Nia et al,[4] (72.4%) and Alimohammadi et al,[5] (65.2%), indicating potential regional, occupational, or methodological differences influencing prevalence.

The gender distribution in the study was entirely female, reflecting the gender composition of the nursing workforce in many settings. The prevalence of VV was higher in women (67%) compared to men in other studies, aligning with reports by Alimohammadi et al,[5] Rosati et al,[6] and Mishra et al,[1] all of whom identified female gender as a significant risk factor. This gender-related predisposition may be attributed to hormonal influences, pregnancy, and occupational patterns. Some studies such as those by Yun et al,[3] and Baghdadi et al,[7] however, reported no statistically significant gender association, possibly due to sampling limitations or occupational homogeny.

Age emerged as a significant risk factor in the present study, with the highest prevalence noted in the 40–50-year age group. This finding concurs with Alimohammadi et al,[5] and AlBader et al,[2] who also demonstrated increasing age as significantly associated with VV. Although some studies like those by Princely et al,[8] and Baghdadi et al,[7] found no significant age-related association, their findings may reflect differences in sample demographics or analytical approaches.

In terms of symptomatology, the most commonly reported symptoms were leg aching and heaviness (78%), visibly tortuous veins (66%), and skin pigmentation (65%). These findings are consistent with Naik and Monteiro, who reported similar symptoms including leg pain (77.6%) and visible spider veins. Al Wahbi et al,[9] also reported pain, restlessness, and cramping as common complaints, reaffirming that symptom patterns of VV are fairly consistent across populations, particularly in occupations involving prolonged upright posture.

A key occupational risk factor identified was prolonged standing, with 96% of participants reporting standing more than 6–8 hours per day. This supports existing literature, including findings by Yun et al,[3] and Alimohammadi et al,[5] who demonstrated a strong correlation between prolonged standing and venous insufficiency. Although AlBader et al,[2] statistical analysis did not confirm prolonged standing as a significant predictor, their qualitative data still supported its role. Discrepancies may be due to different analytical methods or exposure definitions.

Obesity was found in 41% of participants with VV, suggesting a notable correlation. While some studies such as Al Wahbi et al,[9] and Yun et al,[3] support a positive association between elevated BMI and VV, others like Alimohammadi et al,[5] and AlBader et al,[2] did not find statistically significant links. This inconsistency may stem from variations in BMI distributions across study populations. Nonetheless, the role of obesity in increasing intra-abdominal pressure and venous load cannot be overlooked.

Pregnancy was identified as a risk factor in 6% of participants. Though relatively lower than expected, this still aligns with multiple studies such as those by Yun et al,[3] Alimohammadi et al,[5] and AlBader et al,[2] which reported significant associations between pregnancy, parity, and VV. However, inconsistencies in statistical significance across studies—such as in Baghdadi et al,[7] and Al Wahbi et al,[9] highlight the complexity of isolating pregnancy-related venous changes from occupational and genetic factors.

Familial history was reported in 11% of affected individuals, reaffirming the importance of genetic predisposition in the etiology of varicose veins.

Studies by Alimohammadi et al,[5] Baghdadi et al,[7] and Princely et al,[8] have similarly demonstrated strong associations between family history and VV, with some identifying it as the most significant predictor. The hereditary component underscores the need for early screening and preventive strategies in high-risk individuals.

Chronic constipation and history of tumors were reported in 7% and 3% of affected participants, respectively. While fewer studies have examined these risk factors in depth, existing literature supports the role of chronic intra-abdominal pressure as a contributing factor. However, statistical validation in larger cohorts is needed to establish causality.

The duration of service was another notable risk factor, with the majority of participants having 1–5 years of experience. Interestingly, studies such as Princely et al,[8] and AlBader et al,[2] found a significant positive association between years of nursing experience and prevalence of VV. However, Baghdadi et al,[7] observed that intermediate experience levels (6–10 years) were associated with lower risk than early-career nurses, suggesting that workload distribution, adaptation, or shift types may also influence outcomes.

The present study did not explicitly assess physical activity or exercise. Nonetheless, previous research, including studies by Baghdadi et al,[7] and Alimohammadi et al,[5] have emphasized the protective effects of regular exercise—particularly walking and running—against the development of VV. Future investigations should explore the mitigating effects of lifestyle interventions more comprehensively.

CONCLUSION

The present study confirms that varicose veins are highly prevalent among nurses, particularly those exposed to prolonged standing, older age, and with a familial predisposition. Although some inconsistencies exist across global studies regarding specific risk factors such as BMI, pregnancy, and chronic constipation, the occupational burden of nursing clearly places individuals at heightened risk. The findings underscore the urgent need for preventive strategies, ergonomic workplace modifications, early screening, and health education to reduce the physical and occupational burden of varicose veins among nurses.

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